



U.S. Department of Energy

0062783

**Office of River Protection**

P.O. Box 450  
Richland, Washington 99352

04-ED-079

SEP 14 2004

Mr. Michael A. Wilson, Program Manager  
Nuclear Waste Program  
State of Washington  
Department of Ecology  
3100 Port of Benton Blvd.  
Richland, Washington 99352

**RECEIVED**  
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EDMC

Dear Mr. Wilson:

**NEW SOURCE REVIEW NOTICE OF CONSTRUCTION (NOC) FOR THE PROPOSED  
CONTACT-HANDLED TRANSURANIC MIXED WASTE PACKAGING AND STORAGE  
FACILITY**

- References:
1. Ecology letter from M. A. Wilson to R. J. Schepens, ORP, "New Source Review Exemption Notification for the Tank Farm Mixed Waste Treatment, Packaging, and Storage Unit(s)," dated April 14, 2004.
  2. ORP letter from R. J. Schepens to M. A. Wilson, Ecology, "New Source Review Exemption Notification for the Tank Farm Mixed Waste Treatment, Packaging, and Storage Unit(s)," 04-ED-031, dated April 5, 2004.

Attachment 1 is the "New Source Review Notice of Construction for the Proposed Contact-Handled Transuranic Mixed Waste Packaging and Storage Facility." This NOC application addresses the non-radioactive air emissions associated with the installation and operation of the Proposed Contact-Handled Transuranic Mixed (CH-TRUM) Waste Packaging and Storage Facility for processing of mixed wastes from nine single-shell tanks located in the 241-B and 241-T Tank Farms. These nine tanks include the 241-B-201 through 241-B-204; 241-T-201 through 241-T-204; and 241-T-111. Attachment 2 is submitted in response to the State of Washington Department of Ecology (Ecology) request (Reference 1) for a NOC application in accordance with Washington Administrative Code (WAC) 173-400-110(2) for the CH-TRUM Waste Packaging and Storage Facility. A New Source Review Exemption Notification had been previously submitted on April 5, 2004 (Reference 2).

Attachment 2 is a completed Ecology Permit Writer's Completeness Checklist to facilitate a completeness review of the NOC application pursuant to WAC 173-400-110(6). This checklist supports a streamlined format for NOC application review and NOC approval order processing.

Attachment 3 is a Notification of Off-Permit Change to incorporate the NOC application into the Hanford Site Air Operating Permit Number 00-05-006. This Off-Permit information is being provided to Ecology consistent with their role as lead for the Hanford Site Air Operating Permit.

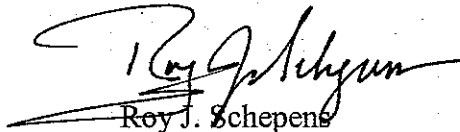
Mr. Michael A. Wilson  
04-ED-079

-2-

SEP 14 2004

If you have any questions, please contact me, or your staff may contact Dennis W. Bowser,  
Environmental Division, (509) 373-2566.

Sincerely,



Roy J. Schepens  
Manager

ED:DWB

Attachments: (3)

cc w/o attaches:

B. G. Erlandson, BNI  
E. S. Aromi, CH2M HILL  
D. J. Carrell, CH2M HILL (w/attachs)  
J. M. Jaraysi, CH2M HILL  
C. J. Kemp, CH2M HILL (w/attachs)  
F. R. Miera, CH2M HILL  
J. Cox, CTUIR  
S. Harris, CTUIR  
K. A. Conaway, Ecology  
S. L. Dahl, Ecology  
J. L. Hensley, Ecology (w/attachs 2 copies)  
J. J. Lyon, Ecology  
O. S. Wang, Ecology (w/attachs)  
J. A. Bates, FHI  
W. E. Green, FHI (w/attachs)  
P. Sobotta, NPT  
K. Niles, Oregon Energy  
M. F. Jarvis, RL  
A. W. Conklin, WDOH  
R. Jim, YN  
Administrative Record  
CH2M Correspondence Control  
Environmental Portal, LMSI

Attachment 1  
04-ED-079

New Source Review Notice of Construction  
for the Proposed Contact-Handled Transuranic Mixed Waste  
Packaging and Storage Facility

# **NEW SOURCE REVIEW NOTICE OF CONSTRUCTION FOR THE PROPOSED CONTACT-HANDLED TRANSURANIC MIXED WASTE PACKAGING AND STORAGE FACILITY**

Prepared by  
CH2M HILL Hanford Group, Inc.

Date Published  
July 2004

United States Department of Energy  
Office of River Protection  
P.O. Box 450  
Richland, Washington

## SUMMARY

The U.S. Department of Energy is proposing the installation and operation of one Proposed Contact-Handled Transuranic Mixed Waste Packaging and Storage Facility to treat transuranic mixed waste from Single-Shell Tanks 241-B-201 through 241-B-204; 241-T-201 through 241-T-204; and 241-T-111. These nine tanks are located in the 200 East and 200 West Areas of the Hanford Site. This document evaluates the toxic air pollutant inventory from nine single-shell tanks as reported in Tank Waste Information Network System and finds that emissions of toxic air pollutants from treatment of the waste stream would be below threshold levels. Washington Administrative Code Small Quantity Emission Rates and Acceptable Source Impact Levels would not be exceeded. Dispersion calculations of annual concentration of toxic air pollutants indicate that concentrations of these compounds at the site boundary are below threshold levels.

Although estimated emissions of toxic air pollutants are below threshold levels in WAC 173-460-080 for permit exemption and the criteria pollutant particulate matter and particulate matter under 10 microns are below the threshold levels in WAC 173-400 for permit exemption, the Washington State Department of Ecology has advised that the installation and operation of the Proposed Contact-Handled Transuranic Mixed Waste Packaging and Storage Facility is not considered a minor process change in accordance with WAC 173-460-040(2)(b) and is not exempt from New Source Review in accordance with WAC 173-400-110(5). Therefore, a Notice of Construction application is being submitted for the installation and operation of the Proposed Contact-Handled Transuranic Mixed Waste Packaging and Storage Facility.

Best Available Control Technology for Toxics will be installed and operated. The Best Available Control Technology for Toxics five-step process completed for the Waste Treatment Plant is intended to serve as the Best Available Control Technology for Toxics process for the Proposed Contact-Handled Transuranic Mixed Waste Packaging and Storage Facility. The five basic steps of the United States Environmental Protection Agency's and Washington State Department of Ecology's top-down process were followed in the Waste Treatment Plant process to evaluate air toxics emission control technologies. The five-step process identified the available control technologies, eliminated the technically infeasible option, ranked the available control technologies, evaluated the most effective controls, and then selected the Best Available Control Technology for Toxics. For particulates and aerosols, a single-stage HEPA filter with a rated 99.97% removal efficiency was proposed for the Waste Treatment Plant. The selected Best Available Control Technology for Toxics for particulates and aerosols for the Proposed Contact-Handled Transuranic Mixed Waste Packaging and Storage Facility is also HEPA filtration.

This document also evaluates the potential emissions of criteria pollutants (particulate matter and particulate matter under 10 microns) from proposed operations of the Proposed Contact-Handled Transuranic Mixed Waste Packaging and Storage Facility. Calculation results show emissions of particulate matter and particulate matter under 10 microns are below threshold levels.

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## TERMS

ALARA	as low as reasonably achievable
ANSI	American National Standards Institute
ASIL	Acceptable Source Impact Level
ASME	American Society of Mechanical Engineers
°C	degrees Celsius
Cfm	cubic feet per minute
CH-TRUM	contact-handled transuranic mixed
cm	centimeters
m <sup>3</sup> /min	cubic meters per minute
CWC	Central Waste Complex
DOE	U.S. Department of Energy
ETF	Effluent Treatment Facility
°F	degrees Fahrenheit
gal	gallons
HEPA	high-efficiency particulate air (filter)
HIHTL	hose-in-hose transfer lines
HPS	Health Physics Society
hrs	hours
hrs/yr	hours per year
in.	inches
L	liter
lbs/hr	pounds per hour
lbs/yr	pounds per year
mg/m <sup>3</sup>	milligrams/cubic meter
NOC	Notice of Construction
NSR	New Source Review
OGTS	Offgas Treatment System
PM	particulate matter
PM <sub>10</sub>	particulate matter under 10 microns
SQER	Small Quantity Emission Rate
SST	single-shell tank
SWB	standard waste box
T-BACT	best available control technology for toxics
TAP	toxic air pollutant
TWINS	Tank Waste Information Network System
VOC	volatile organic compound
WAC	<i>Washington Administrative Code</i>
WRS	waste retrieval system

**METRIC CONVERSION CHART****Into Metric Units****Out of Metric Units**

If you know	Multiply by	To get	If you know	Multiply by	To get
<b>Length</b>			<b>Length</b>		
inches	25.40	millimeters	millimeters	0.03937	inches
inches	2.54	centimeters	centimeters	0.393701	inches
feet	0.3048	meters	meters	3.28084	feet
yards	0.9144	meters	meters	1.0936	yards
miles (statute)	1.60934	kilometers	kilometers	0.62137	miles (statute)
<b>Area</b>			<b>Area</b>		
square inches	6.4516	square centimeters	square centimeters	0.155	square inches
square feet	0.09290304	square meters	square meters	10.7639	square feet
square yards	0.8361274	square meters	square meters	1.19599	square yards
square miles	2.59	square kilometers	square kilometers	0.386102	square miles
acres	0.404687	hectares	hectares	2.47104	acres
<b>Mass (weight)</b>			<b>Mass (weight)</b>		
ounces (avoir)	28.34952	grams	grams	0.035274	ounces (avoir)
pounds	0.45359237	kilograms	kilograms	2.204623	pounds (avoir)
tons (short)	0.9071847	tons (metric)	tons (metric)	1.1023	tons (short)
<b>Volume</b>			<b>Volume</b>		
ounces (U.S., liquid)	29.57353	milliliters	milliliters	0.033814	ounces (U.S., liquid)
quarts (U.S., liquid)	0.9463529	liters	liters	1.0567	quarts (U.S., liquid)
gallons (U.S., liquid)	3.7854	liters	liters	0.26417	gallons (U.S., liquid)
cubic feet	0.02831685	cubic meters	cubic meters	35.3147	cubic feet
cubic yards	0.7645549	cubic meters	cubic meters	1.308	cubic yards
<b>Temperature</b>			<b>Temperature</b>		
Fahrenheit	subtract 32 then multiply by 5/9ths	Celsius	Celsius	multiply by 9/5ths, then add 32	Fahrenheit
<b>Energy</b>			<b>Energy</b>		
kilowatt hour	3,412	British thermal unit	British thermal unit	0.000293	kilowatt hour
kilowatt	0.94782	British thermal unit per second	British thermal unit per second	1.055	kilowatt
<b>Force/Pressure</b>			<b>Force/Pressure</b>		
pounds (force) per square inch	6.894757	kilopascals	kilopascals	0.14504	pounds per square inch

Source: *Engineering Unit Conversions*, M. R. Lindeburg, PE., Second Ed., 1990, Professional Publications, Inc., Belmont, California.

## 1.0 INTRODUCTION

This document serves as the New Source Review (NSR) Notice of Construction (NOC) application for the installation and operation of one Proposed Contact-Handled Transuranic Mixed Waste Packaging and Storage Facility (mixed waste packaging system) for processing of transuranic mixed waste from nine single-shell tanks (SSTs) located in the 241-B and 241-T Tank Farms on the Hanford Site. This NOC application is submitted in accordance with Washington Administrative Code (WAC) 173-400-110 and WAC 173-460-040. The scope of this NOC application begins at the interface point between waste retrieval operations and the mixed waste packaging system's waste receipt tanks, continuing through the transuranic mixed waste treatment and packaging process, and then continuing to waste container storage. A categorical NOC application has been prepared for tank waste retrieval activities and will be submitted to the Washington State Department of Ecology. Table 1 lists the nine SSTs that are the subject of this application.

**Table 1. Single-Shell Tanks Covered by the Notice of Construction**

Tank	Location	Geodetic Coordinates <sup>1</sup>		Waste Volume*	
		Latitude	Longitude	Liters (L)	Gallons (Gal)
241-B-201	200 East, 241-B Tank Farm			114,000	30,000
241-B-202	200 East, 241-B Tank Farm			110,000	29,000
241-B-203	200 East, 241-B Tank Farm			197,000	52,000
241-B-204	200 East, 241-B Tank Farm			193,000	51,000
241-T-111	200 West, 241-T Tank Farm			1,694,000	447,000
241-T-201	200 West, 241-T Tank Farm			117,000	31,000
241-T-202	200 West, 241-T Tank Farm			80,000	21,000
241-T-203	200 West, 241-T Tank Farm			140,000	37,000
241-T-204	200 West, 241-T Tank Farm			140,000	37,000
				TOTAL 2,785,000 (approx)	TOTAL 735,000 (approx)

\*Source: HNF-EP-0182, *Waste Tank Summary Report for Month Ending, May 31, 2004*, CH2M HILL Hanford Group, Inc., Richland, Washington.

<sup>1</sup>Specific Geodetic Coordinates of Hanford tank farm locations have been purposely omitted for security purposes. Approximate locations for the tanks subject to this NOC application can be seen on Figures 2 and 3.

Transuranic mixed slurry waste streams will be received from SSTs 241-B-201, -202, -203, -204 (241-B-200 Series Tanks); and 241-T-201, -202, -203, -204 (241-T-200 Series Tanks); and Tank 241-T-111. The 241-B-200 series tanks are 208,500 Liter (L) (55,000 gallon [gal]) capacity tanks. The 241-T-200 series tanks are 208,500 L (55,000 gal) capacity tanks. Tank 241-T-111 is a 2,009,000 L (530,000 gal) capacity tank. All nine SSTs were constructed in the 1944 era.

The mixed waste packaging system will receive approximately 2,785,000 L (735,000 gal) of a slurry transuranic mixed waste from these nine SSTs.

*The owner/operators intend to maximize, to the extent practicable, the storage of packaged waste at existing permitted facilities on the Hanford site, e.g., Central Waste Complex (CWC). If adequate storage is not available at an existing permitted facility when required, packaged waste will be stored at the two container storage areas.* This NOC application includes the construction of these two container storage areas built as part of the mixed waste packaging system. After the liquid waste stream is processed, liquid effluent will be temporarily stored in two liquid effluent holding tanks until transferred to the Effluent Treatment Facility (ETF) for treatment and disposal using an ETF compatible tanker truck.

## 2.0 SCOPE

The scope of this document is to analyze the organic pollutant vapor data from each of the nine tanks as reported in the Tank Waste Information Network System (TWINS) and to calculate, using the maximum reported value of a toxic air pollutant (TAP), an offsite concentration based on an exhauster discharge flow rate operating continuously for 8,760 hours per year (hrs/yr). The calculated results are then compared to WAC 173-400 regulations for criteria pollutant thresholds and WAC 173-460 regulations for Small Quantity Emission Rate (SQER) and Acceptable Source Impact Level (ASIL) thresholds.

Also, this document analyzes the potential particulate matter emissions of particulate matter (PM) and particulate matter under 10 microns (PM<sub>10</sub>) from sorbent material and sand handling. Results of the analysis presented herein indicate potential nonradioactive emissions are below SQER and ASIL threshold levels for TAPs, and below PM/ PM<sub>10</sub> threshold levels for criteria pollutants. However, the Washington State Department of Ecology has advised the proposed mixed waste packaging system activities do not qualify as a minor process change in accordance with WAC 173-460-040(2)(b) and are not exempt from NSR criteria in accordance with WAC 173-400-110(5). Therefore, a NOC application is to be submitted (Ecology 2004).

## 3.0 BACKGROUND

The 241-B-200 series tanks, the 241-T-200 series tanks, and Tank 241-T-111 were constructed in the 1944 era as part of the Manhattan Project.

Tanks 241-B-201 through 241-B-204 are cascading tanks that received waste from the plutonium concentration activities conducted from October 1946 through June 1952 in the 224-B Concentration Building. After spent nuclear fuel processing activities ended in the 224-B-Plant and cleanout of the plant inventory, Tanks 241-B-201 through 241-B-204 received flush solutions from equipment cleanout in the 221-B and 224-B buildings and metal waste transfer lines (RPP-13300).

Tank 241-T-201 received waste from plutonium concentration activities conducted from November 1946 through May 1949 in the 224-T Concentration Building. Tanks 241-T-202 through 241-T-204 are cascading tanks and received wastes from plutonium concentration activities conducted from May 1949 through May 1952 in the 224-T Concentration Building (RPP-13300).

Tank 241-T-111 received waste from the second decontamination cycle from reprocessing of spent nuclear fuel at the 221-T Plant from January 1945 through October 1956, cell drainage waste from June 1951 through October 1956, 224-T Building wastes from May 1952 through October 1956, and equipment decontamination waste from February 1960 through June 1967 (RPP-13873).

All nine SSTs have since been interim stabilized. The 241-B-200 series tanks were interim stabilized between 1981 and 1985; the 241-T-200 series tanks in 1981; and Tank 241-T-111 in 1995 (HNF-EP-0182).

#### **4.0 LOCATION**

Tanks 241-B-201, 241-B-202, 241-B-203, and 241-B-204 are located on the U.S. Department of Energy (DOE) Hanford Site, 241-B Tank Farm, 200 East Area, Richland, Washington. Tanks 241-T-201, 241-T-202, 241-T-203, 241-T-204, and 241-T-111 are located in the 241-T Tank Farm in the 200 West Area of the Hanford Site (Figures 1, 2, 3).

The facility is managed and operated by CH2M HILL Hanford Group, Inc., for the DOE Office of River Protection under contract DE-AC27-99RL-14047.

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## **5.0 WASTE PACKAGING SYSTEM**

### **5.1 SYSTEM LAYOUT**

Figure 4 shows the mixed waste packaging system site plan in the 241-B Tank Farm and Figure 5 shows the mixed waste packaging system site plan in the 241-T Tank Farm. The mixed waste packaging system will initially be located in the 241-B Tank Farm and then relocated to the 241-T Tank Farm. The waste receipt tanks are skid-mounted and the liquid effluent holding tanks may be fixed-axle tankers or stationary tanks. All tanks will have secondary containment and will be monitored for leaks. Piping outside of the containment structures and trailers at the mixed waste packaging system will be hose-in-hose transfer lines (HIHTL). Commercial unit support systems include above ground, compressed air, instrument air, chilled water, deionized water, and steam supply. Electrical services will be provided by Hanford Site utilities. Office and field trailers will be set-up to accommodate the field staff. Staging areas will be constructed for incoming empty waste containers. A permitted container storage area will be constructed in the 200 East and 200 West Areas for staging of empty containers and filled waste containers if storage space is not available when required at the existing onsite permitted storage areas.

### **5.2 WASTE RETRIEVAL**

The mixed waste packaging system will receive transuranic mixed waste from a SST waste retrieval system (WRS). Waste retrieval activities from the nine SSTs are covered in a separate NOC application and are outside the scope of this proposed project. Information on waste retrieval is provided solely as information to describe the interfaces between the WRS activities and the mixed waste packaging system's waste feed receipt tanks.

The diluted tank waste will be batch-transferred from the SST WRS using HIHTL to the waste feed receipt tanks. A leak proof connection between the HIHTL and the mixed waste packaging system will be established. The mixed waste packaging system will have a capacity to treat 55,510 L (14,400 gal) of diluted tank waste per day. Tank waste will be transferred to the mixed waste packaging system in batches.

### **5.3 WASTE FEED RECEIPT TANKS**

After the transuranic mixed waste stream is retrieved from the WRS waste slurry tank, the waste stream enters the mixed waste packaging system for placement into four waste feed receipt tanks. A fifth receipt tank is typically maintained with no inventory to remain available for contingency use. The waste feed receipt tanks are designed to receive and contain the waste transferred by the WRS activities in preparation for treatment by the mixed waste packaging system.

The waste feed receipt tanks perform the following functions:

- Receive the daily tank waste feed
- Homogenize the received waste
- Feed the mixer dryer.

Each waste feed receipt tank is skid-mounted and will have secondary containment with leak detection capability. Interconnecting piping will be made of material compatible with the waste stream.

The waste feed receipt tanks are designed to accommodate the total amount of waste transferred per batch. Each tank has a capacity of 30,283 L (8,000 gal) with a net working volume of 27,255 L (7,200 gal). Control valves will regulate the incoming waste flow to a single waste receipt tank. Once the liquid waste is received from retrieval operations and mixed, the waste will be transferred from the waste receipt tanks to a mixer dryer.

Waste feed receipt tanks will be actively ventilated via an Offgas Treatment System (OGTS) (Section 5.8). Waste feed receipt tanks will be equipped with high-efficiency particulate air (HEPA) inlet breather vents. During mixed waste packaging system operation, the waste feed receipt tanks are under negative pressure and offgases will be processed through the OGTS. Outside air will enter the waste feed receipt tanks through the HEPA filtered inlet breather vent.

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#### **5.4 MIXER DRYER**

The tank waste is transferred from the waste feed receipt tanks to a mixer dryer that evaporates liquids prior to packaging.

Two mixer dryers will be operated to separate liquids from the solids such that the resultant dryer waste product will have residual water of approximately 20% weight by volume. As diluted tank waste enters the mixer dryer, pressure will be reduced (i.e., a vacuum is applied) and the temperature will be adjusted to enhance the evaporation rate. Temperature will be increased up to 60 degrees Celsius ( $^{\circ}\text{C}$ ) (140 degrees Fahrenheit [ $^{\circ}\text{F}$ ]) using a packaged boiler unit. The mixer dryer will utilize heat from the steam through a heat exchanger for drying the waste. The power source for the packaged boiler unit will be from Hanford's onsite electrical power grid. A back-up generator power source is not anticipated. Liquid condensate effluent from the drying operation will be routed to the liquid effluent holding tanks. When the drying cycle is complete, the waste will be mixed with sorbent from the Bulk Material Handling System and readied for waste packaging.

#### **5.5 LIQUID EFFLUENT HOLDING TANK**

Liquid effluent condensed from the mixer dryer will be collected in two 66,775 L (17,640 gal) liquid effluent holding tanks with leak detection. A portion of liquid waste will be filtered and pumped back to the SST WRS as needed and the remaining liquid effluent will be filtered and transferred via a waste transfer tanker truck to the ETF for treatment and disposal. Outside air will enter the liquid effluent holding tanks through an interconnected inlet HEPA breather vent. Outside air will enter the ETF transfer tanker through a HEPA breather vent.

#### **5.6 SORBENT ADDITION**

Once the required level of dryness is achieved and prior to discharge from the mixer dryer, a solid drying agent (sorbent) material may be added to the waste from the Bulk Material Handling System. The sorbent material is bulk loaded and discharged into the mixer dryer with the waste, as needed, to control product flowability and to remove any free liquid that may form during container handling and transportation. When needed, sand will be added to scour the mixer dryer drum walls to prevent any buildup of solids that could affect mixer dryer heating operations.

#### **5.7 WASTE PACKAGING**

The primary function of the waste packaging system is to fill and sample the waste container, decontaminate (if necessary) the external surfaces of the waste container, and package the waste for interim storage at an onsite container storage area for eventual disposal at an offsite deep geologic repository. The waste packaging process will be enclosed within a structure measuring approximately 6.0 m (20 ft) wide, 3.5 m (11.5 ft) high, and 14.6 m (48 ft) long and operates under negative pressure via the OGTS. Either a standard waste box (SWB) or a 208 L (55 gal) drum may be used for waste packaging containers.

SWB containers being delivered to the mixed waste packaging system will first be visually inspected without removing the lid to ensure that the exterior of the container has not been

damaged in transport. The SWB will remain sealed until the container is moved inside the airlock compartment where a more thorough inspection of the SWB containers will be performed. The SWB is a rectangular container having convex ends with a flat top and base and is designed to meet the waste acceptance criteria for final disposal at an offsite deep geologic repository.

Empty 208 L (55 gal) drums will be delivered to the mixed waste packaging system with the lid secured with the lid-bolt. The original containers will be kept sealed and stored in the empty container storage area until such time as they are required for the storage of wastes. Drums being delivered to the mixed waste packaging system will first be visually inspected without removing the lid to ensure that the exterior of the container has not been damaged in transport and is otherwise in acceptable condition (no corrosion, paint intact, etc.).

An empty waste container will be moved into the airlock compartment. The container will be prepared and inspected before it is moved into the fill compartment. The container lid will be removed at the lidding station. The container (with plastic bag liner) will be moved to the fill station and positioned beneath the gloved containment hood for filling. The airlock and fill compartments are connected to the OGTS to maintain negative pressure. The fill station also includes a connection to the OGTS to maintain a negative air pressure inside the gloved containment hood during container filling.

Dewatered tank waste from the mixer dryer, and sorbent, as required, will be discharged from beneath the mixer dryer through a control valve and metered into a container. The waste packaging activity will be visually inspected and monitored using closed-circuit television. The plastic bag liner will then be closed and the container moved to the lidding station where the lid will be replaced. The container will then be moved into the airlock for radiation survey and decontamination as required. The SWB container will be sealed using a bolted lid with an ethylene propylenediene monomer gasket measuring approximately 3.81 centimeters (cm) (1.5 inches [in.]) wide and 1.27 cm (0.5 in.) thick. The ethylene propylenediene monomer gasket will be compatible with and meet the waste packaging acceptance criteria of the offsite deep geologic repository. Treated waste will be packaged in the appropriate SWB or 208 L (55 gal) drum. NucFil<sup>1</sup> HEPA filters or equivalent will be installed to relieve any potential internal gas generation.

Waste containers will move on a conveyance system within the airlock and fill compartments using local controls. Positioning devices and mechanical stops will help position the container at various process stations during the packaging process. After filling, waste containers will be surveyed and decontaminated as appropriate in accordance with Hanford's as low as reasonably achievable (ALARA) principles before moving containers to the container storage area. All containers received will be packaged and labeled to meet the requirements of the offsite deep geologic repository.

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<sup>1</sup> NucFil is a registered trademark of Nuclear Filter Technology, Inc., Golden, Colorado

## 5.8 OFFGAS TREATMENT SYSTEM

The OGTS will receive offgas from the mixed waste packaging system's five waste feed receipt tanks, two mixer dryers, and waste packaging containment systems. The OGTS is a skid-mounted unit that will filter and monitor the effluents for radioactive particulates and exhaust to the atmosphere through a stack. Prior to airflow entering the OGTS, water vapor is removed from the airflow and a heater raises the temperature and dew point. After the airflow is heated, airflow continues through one stage of pre-filters, two stages of HEPA filters in series, and then is exhausted to the atmosphere through a stack equipped with sample ports and monitoring equipment.

The OGTS will be fabricated in accordance with latest versions of American Society of Mechanical Engineers (ASME) AG-1, ASME N509, ASME N510, and American National Standards Institute (ANSI) ANSI/Health Physics Society (HPS) N13.1. Each HEPA filter section will have injection ports and sampling ports for independent aerosol testing. The stack will include an effluent monitoring system that will indicate high radiation levels by sounding an alarm. If a high radiation alarm sounds, trained personnel will follow alarm response procedures that will shut down the process in a safe and controlled manner. Specific steps that the trained personnel will take to initiate a controlled shutdown will consist of the following activities:

- Stop steam to dryer (removes motive force)
- Stop waste packaging (allows operators to leave container)
- Stop Liquid Effluent System transfers (allows operators to clear area)
- Stop slurry feed to mixer dryers (precaution only).

The stack monitoring system for radionuclide emissions will include a stack sampling shrouded nozzle design and vacuum pumps to provide sampling ability. Each OGTS section will drain to a central seal pot with a water seal to prevent any bypass of airflow through the drains. The seal pot will be monitored for level to ensure the drain seals are maintained.

The airflow exhaust maximum design velocity is approximately 60 cubic meters per minute ( $\text{m}^3/\text{min}$ ) (2,000 cubic feet per minute [cfm]). It is anticipated the exhauster may operate at less than  $60 \text{ m}^3/\text{min}$  (2,000 cfm) but would not exceed this flow rate.

## 5.9 WASTE STORAGE

*The owner/operators intend to maximize, to the extent practicable, the storage of packaged waste at existing permitted facilities on the Hanford site, e.g., Central Waste Complex (CWC). If adequate storage is not available at an existing permitted facility when required, packaged waste will be stored at the two container storage areas. This NOC application includes the construction of two container storage areas. The 200 East Area container storage area will be designed to accommodate up to 240 filled waste containers and the 200 West Area container storage area will be designed to accommodate up to 1,260 filled waste containers. The filled waste containers may be either SWB's or 208 L (55 gal) drums.*

## 6.0 PROJECT ACTIVITIES

The proposed activity consists of construction, installation, and operation on the Hanford Site of one mixed waste packaging system that may include one container storage area in the 200 East Area and one container storage area in the 200 West Area. This mixed waste packaging system will dewater and dry (i.e., treat) a transuranic mixed waste stream, add sorbent material, package the dried transuranic mixed waste stream, and store the packaged containers. The mixed waste packaging system will be constructed and operated to receive and package waste streams from Hanford Site waste retrieval activities. Transuranic mixed waste will be received from nine SSTs as described in Section 1.0 (see also Table 1). Four SSTs are located in the 200 East Area (241-B Tank Farm) and five SSTs are located in the 200 West Area (241-T Tank Farm) of the Hanford Site (Figure 1). The mixed waste packaging system will be set up and operated at the 241-B Tank Farm in the 200 East Area (Figure 2). Upon completion of the activities at the 241-B Tank Farm, the mixed waste packaging system will be relocated to the 241-T Tank Farm (Figure 3). The mixed waste packaging system will treat and package about 2,785,000 L (735,000 gal) of liquid transuranic mixed waste from the 241-B and 241-T Tank Farms. SST tank waste will be dewatered and dried to lower the moisture content by utilizing a mixer dryer. After treatment, the waste will be packaged for onsite storage pending shipment to an offsite deep geological repository.

Activities for operating the mixed waste packaging system are expected to include those noted below, and/or others similar in nature. The listing is not intended to be all-inclusive but to only represent those types of activities required in the operation of the mixed waste packaging system. Other mixed waste packaging system activities not yet defined may be conducted with no anticipated impact on the organic inventories of the nine SSTs used for calculating emissions. The noted processes apply to the mixed waste packaging system:

- Receipt of transuranic mixed waste from waste retrieval activities to waste tanks within the mixed waste packaging system
- Mixing of tank waste in the waste feed receipt tanks
- Transfer of tank waste to the mixer dryer
- Evaporating liquid using a mixer dryer
- Bulk loading and mixing of sorbent
- Collection of dewatered waste/sorbent in waste containers
- Collection of condensate
- Transfer of residual liquid effluent (condensate) to holding tanks
- Transfer of liquid effluent to ETF
- Occasional addition of sand to scour mixer dryer walls
- Routing of waste feed receipt tank offgas, mixer dryer offgas, and offgas from waste packaging to an OGTS
- Interim storage of empty waste containers

- Storage of filled waste containers
- Site preparation work – grading, excavating, backfilling, utilities, fencing, and storage pads
- Installation of construction office trailers, field trailers, change trailers, and storage facilities.

## 7.0 CRITERIA POLLUTANTS

Criteria Pollutants listed in Table 2 are regulated under WAC 173-400-110.

Table 2. Pollutant Threshold Level and Estimated Emissions		
	Threshold Level (tons per year)	Estimated Emissions (tons per year)
(a) Total Suspended Particulates	1.25	0.000528 (Table D-1)
(b) PM <sub>10</sub>	0.75	0.000217 (Table D-1)
(c) Sulfur Oxides	2.0	Not a significant source
(d) Nitrogen Oxides	2.0	Not a significant source
(e) Volatile Organic Compounds, total	2.0	Not a significant source
(f) Carbon Monoxide	5.0	Not a significant source
(g) Lead	0.005	Not a significant source
(h) Ozone Depleting Substances	1.0	Not a significant source
(i) Toxic Air Pollutants	As specified in WAC 173-460	Not a significant source

Appendix D shows PM and PM<sub>10</sub> emissions resulting from sorbent hopper loading do not exceed threshold levels. Emissions of sulfur oxides, nitrogen oxides, volatile organic compounds (VOC), carbon monoxide, lead, and ozone depleting substances are typically generated as combustion products and the nine waste tanks are not considered a significant source of these criteria pollutants.

## 8.0 TOXIC AIR POLLUTANTS

TAPs are regulated under WAC 173-460. TAPs are divided into two classes – Class A and Class B. Appendix A shows the maximum reported TAP vapor sample data as reported in TWINS for the 241-B Tank Farm. Appendix B shows the maximum reported TAP vapor sample data as reported in TWINS for the 241-T Tank Farm. Both Class A and Class B TAPs are present in the nine tanks. Appendix C calculates Class A and Class B TAP emissions from 241-B Tank Farm and 241-T Tank Farm assuming continuous operation.

## **9.0 VENTILATION AND AIRBORNE EMISSIONS CONTROL SYSTEM**

Waste feed receipt tanks, dewatering system operations, and waste packaging containment systems will be exhausted under negative pressure to the OGTS. Prior to airflow entering the OGTS, water vapor is removed from the airflow and a heater raises the temperature and dew point. After the airflow is heated, airflow continues through two pre-filters, two HEPA filters in series, and then is exhausted to the atmosphere through a stack equipped with sample ports and monitoring equipment for radioactive air emissions. Airflow will be exhausted at approximately 60 m<sup>3</sup>/min (2,000 cfm). The exhauster may be operated at a flow rate less than 60 m<sup>3</sup>/min (2,000 cfm). Figure 6 shows the planned exhauster's conceptual design.

Ventilation system components will be procured to meet the latest requirements of ASME N509, ASME N510, and ASME AG-1, as applicable. Where conflicts occur, ASME AG-1 takes precedence. Two liquid effluent holding tankers or stationary tanks will be passively vented directly to atmosphere through a HEPA breather filter. Filter design and performance specifications of the breather filters are the same as those for the OGTS. Packaged waste containers will be equipped with NucFil HEPA filters (or equivalent).

### **9.1 PROPOSED BEST AVAILABLE CONTROL TECHNOLOGY FOR TOXICS**

The best available control technology for toxics (T-BACT) five-step process completed for the Hanford Site Waste Treatment Plant (WTP) is intended to serve as the T-BACT process for the proposed mixed waste packaging system. The five basic steps of the United States Environmental Protection Agency's and Washington State Department of Ecology's top-down T-BACT process were followed in the WTP process to evaluate air toxics emission control technologies (24590-WTP-RPT-ENV-01-005 2002). The T-BACT five-step process identified the available control technologies, eliminated the technically infeasible option, ranked the available control technologies, evaluated the most effective controls, and then selected the T-BACT control. For particulates and aerosols, a single-stage HEPA filter with a rated 99.97% removal efficiency was proposed as T-BACT for the WTP. The T-BACT selected for control of particulates and aerosols for the mixed waste packaging system is also single-stage HEPA filtration.

The proposed T-BACT technology for the proposed mixed waste packaging system is HEPA filters. The HEPA filters will be nuclear-grade with a rated 99.97% removal efficiency and an in-place leak test efficiency of 99.95%. HEPA filters will be protected by airflow passing through a heater to raise the temperature and dew point prior to reaching the HEPA filters.

HEPA filters are also the required Best Available Radionuclide Control Technology for the State of Washington Department of Health. Emission controls approved by the State of Washington Department of Health are deemed sufficient for possible concerns over de minimus criteria and/or particulate emissions.

## **9.2 MONITORING**

No air emission sampling will be required for nonradioactive air emissions because all emissions are below their respective SQER and ASIL threshold levels. As a best management practice, organic vapor analyzers, or other similar instruments for detecting fugitive organic emissions as part of Hanford's Industrial Hygiene program to monitor worker exposure, will be used to confirm low VOC emissions. No special VOC controls are required.

## **9.3 CONTAMINATION CONTROL**

To minimize the spread of contaminants in accordance with ALARA principles during waste packaging activities, three zones of progressively negative pressure will be established within the dewatering system and waste packaging system trailers. Negative pressure will be maintained as airflow moves from areas of least contamination to areas of greater contamination. The highest negative pressure will be maintained in the waste container packaging area. Then, a decreasing negative pressure will be maintained moving away from the waste packaging area to the airlock areas. Interlocks will be provided to assure zoned areas are maintained under negative pressure during operations.

Filled waste containers will be surveyed and decontaminated as appropriate in accordance with ALARA principles before moving the containers to the container storage area.

## **10.0 METHODOLOGY OF COMPARISON CALCULATED EMISSIONS TO SQER AND ASIL THRESHOLDS**

For calculation of dispersed offsite concentration of TAPs to members of the public, vapor sample data as reported in TWINS were used for developing the pollutant source term. Tank vapor space sample data, as available, were reviewed against WAC 173-460-160 Class A and Class B TAP Chemical Abstract Services numbers and ASIL thresholds. The maximum reported concentration was selected for the Class B TAP CAS number for those tanks located in the 241-B Tank Farm (241-B-201 through 241-B-204 [see Appendix A]). Similarly, the maximum reported concentration was selected for the Class A and Class B TAP CAS number and for Tanks 241-T-201 through 241-T-204; and 241-T-111 (see Appendix B). A worst-case bounding tank pollutant source inventory was developed that contained the highest concentration of each constituent detected. Emission quantities were calculated based on the worst-case tank scenario using maximum concentrations and mixed waste packaging system operation under active ventilation for one year (8,760 hrs). Active ventilation calculations appear in Appendix C and represent a conservative approach because it is unlikely there will be continuous operation for

the entire year. Appendix D calculations reflect the estimated particulate matter emissions of PM and PM<sub>10</sub> from sorbent hopper loading.

Criteria used in calculating emission quantities:

1. Vapor space data from Tank 241-B-202 as reported in TWINS is used for Tanks 241-B-201 through 241-B-204.

Basis: Vapor space data is only available for Tank 241-B-202, and is not available for Tanks 241-B-201, 241-B-203, and 241-B-204. All of the 241-B-200 series tanks received waste from the 224-B Concentration Building (RPP-13300). Because of the source of the waste from the 224-B Concentration Building and the designed cascading flow effect of the tanks, it is reasonable to assume that the vapor space data in Tanks 241-B-201, 241-B-203, and 241-B-204 would be similar to Tank 241-B-202. For Tank 241-B-202, the maximum value reported for ammonia is 3.0E+00 ppmv and will be considered representative of the remaining 241-B-200 series tanks. The maximum reported vapor concentration of Tank 241-B-202 organic compounds is 9.4E-01 mg/m<sup>3</sup> (PNNL-11267) and is considered representative of the organic compounds in Tanks 241-B-201, 241-B-203, and 241-B-204.

2. Vapor space data from Tank 241-B-202 as reported in TWINS is used for Tanks 241-T-201 through 241-T-204.

Basis: Vapor space data is only available for Tank 241-B-202, and is not available for Tanks 241-T-201 through 241-T-204. The plutonium concentration process conducted in the 224-T Concentration Building was similar to that conducted at the 224-B Concentration Building. Both facilities operated under the same flowsheet processing conditions. No other waste types were transferred into these tanks. Since Tank 241-B-202 is the only 241-B-200 series tank with vapor space data, it is reasonable to assume that the vapor space data for 241-B-202 would be representative of the vapor space data for Tanks 241-T-201 through 241-T-204 because the same plutonium concentration process was conducted at both the 224-B and 224-T Concentration Building.

Therefore, the 241-T-200 series tanks have been considered as having a similar amount of ammonia (3.0E+00 ppmv) present in the vapor space as reported in TWINS for Tank 241-B-202 and a similar amount of organic compounds (9.4E-01 mg/m<sup>3</sup>) present in the vapor space as reported in PNNL-11267 for Tank 241-B-202.

3. A maximum concentration of an organic constituent was selected from either the 241-B-200 series; the 241-T-200 series; and/or Tank 241-T-111 to create a worst-case scenario. Tank 241-T-111 organic results, as reported in TWINS, was the inventory used for calculation of TAP emissions.

**Basis:** Selecting the maximum value of each identified organic constituent from vapor space data would provide a worst-case tank scenario. Emission calculations would, therefore, be based on a worst-case concentration and would provide a bounding calculation of emissions to the environment. The total reported concentration of organic compounds for Tank 241-T-111 is  $2.1\text{E}+00 \text{ mg/m}^3$  (summed values in Column H of Table B-1 less inorganic ammonia).

The maximum reported concentration of organic compounds in Tank 241-B-202 is  $9.4\text{E}-01 \text{ mg/m}^3$ . As noted in Criteria #2, the vapor space data of 241-B-202 would be representative of vapor space data for Tanks 241-T-201 through 241-T-204.

In evaluating the 241-T-200 series tanks, an additional +25% allowance for sample variance was added to the maximum reported concentration for Tank 241-B-202. This yields a total concentration of  $1.2\text{E}+00 \text{ mg/m}^3$  of organic compounds in each of the 241 T-Farm 200 series tanks. Given this +25% allowance consideration, the total organic concentration of  $1.2\text{E}+00 \text{ mg/m}^3$  in each of the 241 T-Farm 200 series tanks is less than the total organic concentration in Tank 241-T-111. Therefore, Tank 241-T-111 contains the highest total concentrations of organic compounds for calculation of TAP emissions.

4. Tank sludge gases are in equilibrium with the tank headspace. Therefore, vapor space samples are representative of tank pollutant concentrations.

**Basis:** The organic compounds in the tank waste produce organic pollutants in the tank headspace by evaporation, hydrolysis, and radiolysis. The tanks are not actively ventilated and with the passing of time, tank equilibrium is expected to have occurred.

5. The exhauster maximum flow rate is  $60 \text{ m}^3/\text{min}$  (2,000 cfm)

**Basis:** The maximum flow rate reflects the current design.

6. The OGTS will operate 24 hrs/day for 365 days/yr for a total of 8,760 hrs.

**Basis:** This is conservative but does represent the maximum run time for emission calculations.

7. The Unit Concentration Factors from Industrial Source Complex Dispersion Modeling were used for ground level releases for 24-hr average and annual average releases from the 200 East and 200 West Areas.

24-hr average concentration factor =  $2.79$  (200 East Area)  $\mu\text{g/m}^3/\text{g/sec}$  and  $3.46$  (200 West Area)  $\mu\text{g/m}^3/\text{g/sec}$ ;

Annual average =  $0.0793$  (200 East Area)  $\mu\text{g/m}^3/\text{g/sec}$  and  $0.0585$  (200 West Area)  $\mu\text{g/m}^3/\text{g/sec}$ .

**Basis:** These unit concentration factors are used by the Tank Farm Contractor on the Hanford Site for air concentrations at site boundaries. Source: Memo to J.S. Hill from P.D. Rittman, Unit Concentration Factors from ISC3, September 27, 1996.

The Appendix C worksheet shows the comparison of calculated concentration of TAPs to SQER and ASIL thresholds. Columns A through E list the chemical name, CAS number, TAP Class,

SQER, and ASIL respectively, and are from WAC 173-460-080, -150, and -160. Column F is the maximum reported value for the CAS number from column H in milligram per cubic meter ( $\text{mg}/\text{m}^3$ ) of Appendix A (for 241-B Tank Farm) or Appendix B (for 241-T Tank Farm). Column G is the calculated result for pounds per hour ( $\text{lbs}/\text{hr}$ ) discharged. Column H is the result for pounds per year ( $\text{lbs}/\text{yr}$ ) ( $8,760 \text{ hrs}/\text{yr} * \text{lbs}/\text{hr}$  from Column G). Column I is the result of a comparison of Column G  $\text{lbs}/\text{hr}$  or Column H  $\text{lbs}/\text{yr}$  to the Column D SQER value noting either the calculated result is at or below the SQER. Column J is the result of a conversion from Column H  $\text{lbs}/\text{yr}$  to  $\mu\text{g}/\text{m}^3$ . Column K is the result of a comparison between Column J and Column E noting if the calculated value is below the ASIL threshold.

Organic chemicals in the waste stream received from the nine SSTs and treated at the mixed waste packaging system contain the same concentrations as reported in TWINS and are expected to be in the vapor space of the waste feed receipt tanks. Estimated emissions are conservative because calculated emissions were assumed to occur over an 8,760 hr operating period and no credit was taken for the purge time of the receiving tanks under active ventilation. When consideration is given for tank purging, the pollutants will be exhausted to the environment in minutes and not over the period of 8,760 hrs.

For illustrative purposes, assume batch transfers occur and there is 90% available vapor space volume for each of the four waste receipt tanks totaling a net working volume of 98,120 L (25,920 gal). The fifth waste receipt tank is not considered because it is typically maintained with no inventory and available for contingency use. At a designed exhaust ventilation rate of  $60 \text{ m}^3/\text{min}$  (2,000 cfm), the total vapor space volume would be purged in approximately 0.03 hrs, or approximately 2 minutes.

$$2,000 \text{ cfm} * 7.481 \text{ gal}/\text{cu ft} * 60 \text{ min}/\text{hr} = 8.98\text{E}+05 \text{ gal}/\text{hr}$$

$$25,920 \text{ gal}/8.98\text{E}+05 \text{ gal}/\text{hr} = 0.03 \text{ hrs or about 2 minutes}$$

Therefore, when batch transfers of waste are received at the waste receipt tanks and purged within minutes, estimating emissions of TAPs over a total period of 8,760 hrs is conservative, yet still below SQER and ASIL thresholds.

Appendix D is the calculation and results of particulate emissions from loading of the storage silo with sorbent and sand. Results show PM and  $\text{PM}_{10}$  emissions are below threshold levels of WAC 173-400-110(5)(d).

## 11.0 DURATION OR LIFETIME

Field activities to support site preparation and equipment installation are currently scheduled to begin no earlier than October 2004. Waste processing activities are currently scheduled to start June 2005 and be completed no later than December 2007. The activity start and complete dates may vary dependent on Hanford Site planning. Also, waste container storage in the RCRA permitted container storage areas would be expected to continue up to 10 years after waste processing activities until shipped to an offsite deep geologic repository.

## 12.0 PROPOSED CONDITIONS AND RESTRICTIONS

Suggested approval order conditions and restrictions are included in Appendix E.

## 13.0 REFERENCES

- 24590-WTP-RPT-ENV-01-005, 2002, *Best Available Control Technology Analysis for Toxic Air Pollutants for the WTP*, Rev 0, U.S. Department of Energy, Office of River Protection, Richland, Washington.
- ANSI/HPS N13.1, 1999, *Sampling and Monitoring Releases of Airborne Radioactive Substances from Stacks and Ducts of Nuclear Facilities*, Health Physics Society, McLean, Virginia.
- ASME AG-1, 2003, *Code on Nuclear Air and Gas Treatment*, as amended, American Society of Mechanical Engineers, New York, New York.
- ASME N509, 2003, *Nuclear Power Plant Air Cleaning Units and Components*, American Society of Mechanical Engineers, New York, New York.
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- EPA AP-42, *Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources*, Ed. 5, U.S. Environmental Protection Agency, Washington, D.C.
- HNF-EP-0182, 2004, *Waste Tank Summary Report for Month Ending May 31, 2004*, Rev. 194, CH2M HILL Hanford Group, Inc., Richland, Washington.
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- Rittman, P. D., 1996, *Unit Concentration Factors from ISC3*, (memo to John S. Hill, September 27), published in DOE/RL-97-10.
- RPP-13300, 2003, *Origin of Wastes in the B-200 and T-200 Series Single-Shell Tanks*, Rev. 0, CH2M HILL Hanford Group, Inc., Richland, Washington.
- RPP-13873, 2003, *Origin and Classification of Wastes in Single-Shell Tanks 241-T-110 and 241-T-111*, Rev. 0, CH2M HILL Hanford Group, Inc., Richland, Washington.

TWINS, Tank Waste Information Network System, available on the Internet to authorized personnel at <http://twinsweb.pnl.gov>, as of August 2003.

WAC 173-400, "General Regulations for Air Pollution Sources," *Washington Administration Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

WAC 173-460, "Controls for New Sources of Toxic Air Pollutants," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

## **APPENDIX A**

### **MAXIMUM REPORTED POLLUTANT – 241-B TANK FARM (TANKS 241-B-201 THROUGH 241-B-204)**

**Table A-1. Maximum Reported TAP for 241-B Tank Farm**

Column A	B	C	D	E	F	G	H	I	J	K	L
Toxic Air Pollutant	Molecular Weight	CAS #	TAP CLASS	SQER (A lbs/yr, B lbs/hr)	ASIL ( $\mu\text{g}/\text{m}^3$ )	Maximum Reported (ppbv)	Maximum Reported ( $\text{mg}/\text{m}^3$ )	B201 Max Value	B202 ppmv Max Value (a)	B203 Max Value	B204 Max Value
Ammonia	17.0306	7664-41-7	B	2.00	100	3.0E+03	$H=G*B/24/1000$	ND	3.00E+00	ND	ND
							2.1E+00				

Note: (a) Ammonia (reported as 3 ppmv) has been converted to ppbv

Conversions:

$$3.0 \text{ ppmv} * 1000 \text{ ppbv/ppmv} = 3,000 \text{ ppbv}$$

$$\text{mg}/\text{m}^3 = \text{ppbv} * \text{molecular weight}/24/1000 \quad [2.1\text{E}+00 \text{ mg}/\text{m}^3 = 3.0\text{E}+03 * 17.0306/24/1000]$$

Source: Tank Waste Inventory Network System (TWINS), <http://twinsweb.pnl.gov>

ND - no data available

**APPENDIX B**

**MAXIMUM REPORTED POLLUTANT – 241-T TANK FARM  
(TANKS 241-T-201 THROUGH 241-T-204  
AND 241-T-111)**

**Table B-1. Maximum Reported TAP for 241-T Tank Farm**

Column A	B	C	D	E	F	G	H	I	J	K	L	M
Toxic Air Pollutant	Molecular Weight	CAS #	TAP CLASS	SQER (A lbs/yr, B lbs/hr)	ASIL (µg/m <sup>3</sup> )	Maximum Reported (ppbv) (b)	Maximum Reported (mg/m <sup>3</sup> )	T201 Max Value (a)	T202 Max Value (a)	T203 Max Value (a)	T204 Max Value (a)	T111 Max Value
							H=G*B/24/1000					
Chloroform	119.3781	67-66-3	All	10	0.043	1.2E+01	6.0E-02					1.20E+01
Benzene	78.1147	71-43-2	All	20	0.12	6.0E+00	2.0E-02					6.00E+00
Dichloromethane (methylene chloride)	84.933	75-09-2	All	50	0.56	9.0E+00	3.2E-02					9.00E+00
Perchloroethylene (tetrachloroethylene)	165.8342	127-18-4	All	500	1.1	2.1E+01	1.5E-01					2.10E+01
Phenyl ether	170.2129	101-84-8	B	0.20	23	2.8E+01	2.0E-01					2.80E+01
Pyridine	79.1023	110-86-1	B	0.60	53	2.0E+01	6.6E-02					2.00E+01
2-Hexanone (MBK)	100.1619	591-78-6	B	1.20	67	8.0E+00	3.3E-02					8.00E+00
Ammonia	17.0306	7664-41-7	B	2.00	100	2.3E+05	1.6E+02	3.00E+00	3.00E+00	3.00E+00	3.00E+00	2.27E+02
Acetonitrile	41.0529	75-05-8	B	2.60	220	9.4E+01	1.6E-01					9.40E+01
Toluene	92.1419	108-88-3	B	5	400	1.7E+01	6.5E-02					1.70E+01
n-Butyl alcohol	74.1237	71-36-3	B	5	500	7.0E+00	2.2E-02					7.00E+00
Methyl isobutyl ketone (MIBK)	100.1619	108-10-1	B	5	680	4.0E+00	1.7E-02					4.00E+00
Methyl n-amyl ketone	114.189	110-43-0	B	5	780	1.2E+01	5.7E-02					1.20E+01
Methyl alcohol	32.0424	67-56-1	B	5	870	3.0E+02	4.0E-01					3.00E+02
tert-Butyl alcohol	74.1237	75-65-0	B	5	1,000	1.9E+01	5.9E-02					1.90E+01
Methyl ethyl ketone (MEK)	72.1077	78-93-3	B	5	1,000	1.5E+01	4.5E-02					1.50E+01
n-Propyl alcohol	60.0966	71-23-8	B	5	1,600	7.0E+00	1.8E-02					7.00E+00
Methyl propyl ketone	86.1348	107-87-9	B	5	2,300	2.0E+01	7.2E-02					2.00E+01
Isopropyl alcohol	60.0966	67-63-0	B	5	3,300	5.0E+00	1.3E-02					5.00E+00
Nonane	128.2597	111-84-2	B	5	3,500	1.7E+01	9.1E-02					1.70E+01
Octane	114.2326	111-65-9	B	5	4,700	1.0E+00	4.8E-03					1.00E+00
Heptane (n-Heptane)	100.2055	142-82-5	B	5	5,500	2.0E+00	8.4E-03					2.00E+00
Acetone	58.0806	67-64-1	B	5	5,900	1.9E+02	4.5E-01					1.87E+02
Trichlorofluoromethane	137.3685	75-69-4	B	5	19,000	1.8E+01	1.0E-01					1.80E+01
TOTAL ORGANICS (LESS AMMONIA)							2.1E+00					

NOTE: (a) 241-T-200 series tanks have similar vapor space characteristics as Tank 241-B-202 as explained in Section 10.0. Tank 241-T-111 represents the maximum concentration for calculation of TAP emissions as explained in Section 10.0.

(b) Ammonia reported in TWINS for 241-T-111 as 2.27E+02 ppmv has been converted to 2.3E+05 ppbv. All other values are in ppbv

Example Ammonia calculation:

$$\text{mg/m}^3 = \text{ppbv} * \text{molecular weight} / 24 / 1000 [1.60E+02 \text{ mg/m}^3 = 2.3E+05 \text{ ppbv} * 17.0306 / 24 / 1000]$$

Source: Tank Waste Inventory Network System (TWINS), <http://twinsweb.pnl.gov>

## **APPENDIX C**

### **EMISSION CALCULATION – ACTIVE VENTILATION 241-B TANK FARM (241-B-201 THROUGH 241-B-204) 241-T TANK FARM (241-T-201 THROUGH 241-T-204 AND 241-T-111)**

**Table C-1. 241-B Tank Farm – Active Ventilation**

VENTILATION RATE	2000	Cfm								
HOURS PER YEAR OPERATION	8,760	HOURS								
TAP A CONCENTRATION FACTOR (ACF)	0.0793	(200-EAST)								
TAP B CONCENTRATION FACTOR (BCF)	2.79	(200-EAST)								
Column A	B	C	D	E	F	G	H	I	J	K
Toxic Air Pollutant	CAS #	TAP CLASS	SQER (A LBS/YR, B LBS/HR)	ASIL ( $\mu\text{g}/\text{m}^3$ )	Maximum Reported ( $\text{mg}/\text{m}^3$ )	LBS/HR DISCHARGED	LBS/YR DISCHARGED	AT OR BELOW SQER	ESTIMATED OFFSITE CONCENTRATION ( $\mu\text{g}/\text{m}^3$ )	BELOW ASIL VALUE
Ammonia	7664-41-7	B	2	1.00E+02	2.1E+00	1.57E-02	1.38E+02	YES	5.53E-03	YES

**EXAMPLE CALCULATIONS:**

**TAP B - AMMONIA**  $G = 2000 * 2.1E+00 * (1/1000) * (1/35.3147) * (1/453.59237) * 60$   
 $H = 8,760 * 1.57E-02$   
 $J = 1.57E-02 * 24 * 453.59237 * 2.79 / 86400$

Table C-2. 241-T Tank Farm – Active Ventilation

VENTILATION RATE	2000	Cfm
HOURS PER YEAR OPERATION	8,760	HOURS
TAP A CONCENTRATION FACTOR (ACF)	0.0585	(200-WEST)
TAP B CONCENTRATION FACTOR (BCF)	3.46	(200-WEST)

A	B	C	D	E	F	G	H	I	J	K
Toxic Air Pollutant	CAS #	TAP CLASS	SQER (A) LBS/YR, B LBS/HR	ASIL ( $\mu\text{g}/\text{m}^3$ )	Maximum Reported ( $\text{mg}/\text{m}^3$ )	LBS/HR DISCHARGED	LBS/YR DISCHARGED	AT OR BELOW SQER	ESTIMATED OFFSITE CONCENTRATION ( $\mu\text{g}/\text{m}^3$ )	BELOW ASIL VALUE
Chloroform	67-66-3	All	10	4.30E-02	6.0E-02	4.51E-04	3.95E+00	YES	3.32E-06	YES
Benzene	71-43-2	All	20	1.20E-01	2.0E-02	1.50E-04	1.31E+00	YES	1.10E-06	YES
Dichloromethane (methylene chloride)	75-09-2	All	50	5.60E-01	3.2E-02	2.40E-04	2.10E+00	YES	1.77E-06	YES
Perchloroethylene (tetrachloroethylene)	127-18-4	All	500	1.10E+00	1.5E-01	1.12E-03	9.84E+00	YES	8.28E-06	YES
Phenyl ether	101-84-8	B	0.20	2.30E+01	2.0E-01	1.50E-03	1.31E+01	YES	6.53E-04	YES
Pyridine	110-86-1	B	0.60	5.30E+01	6.6E-02	4.94E-04	4.33E+00	YES	2.18E-04	YES
2-Hexanone (MBK)	591-78-8	B	1.20	6.70E+01	3.3E-02	2.47E-04	2.17E+00	YES	1.08E-04	YES
Ammonia	7664-41-7	B	2	1.00E+02	1.6E+02	1.20E+00	1.05E+04	YES	5.23E-01	YES
Acetonitrile	75-05-8	B	3	2.20E+02	1.6E-01	1.20E-03	1.05E+01	YES	5.23E-04	YES
Toluene	108-88-3	B	5	4.00E+02	6.5E-02	4.87E-04	4.27E+00	YES	2.12E-04	YES
n-Butyl alcohol	71-36-3	B	5	5.00E+02	2.2E-02	1.65E-04	1.44E+00	YES	7.18E-05	YES
Methyl isobutyl ketone (MIBK)	108-10-1	B	5	6.80E+02	1.7E-02	1.27E-04	1.12E+00	YES	5.55E-05	YES
Methyl n-amyl ketone	110-43-0	B	5	7.80E+02	5.7E-02	4.27E-04	3.74E+00	YES	1.86E-04	YES
Methyl alcohol	67-56-1	B	5	8.70E+02	4.0E-01	3.00E-03	2.82E+01	YES	1.31E-03	YES
tert-Butyl alcohol	75-65-0	B	5	1.00E+03	5.8E-02	4.42E-04	3.87E+00	YES	1.93E-04	YES
Methyl ethyl ketone (MEK)	78-93-3	B	5	1.00E+03	4.5E-02	3.37E-04	2.95E+00	YES	1.47E-04	YES
n-Propyl alcohol	71-23-8	B	5	1.60E+03	1.8E-02	1.35E-04	1.18E+00	YES	5.88E-05	YES
Methyl propyl ketone	107-87-9	B	5	2.30E+03	7.2E-02	5.39E-04	4.72E+00	YES	2.35E-04	YES
Isopropyl alcohol	67-83-0	B	5	3.30E+03	1.3E-02	9.74E-05	8.53E-01	YES	4.25E-05	YES
Nonane	111-84-2	B	5	3.50E+03	9.10E-02	6.82E-04	5.97E+00	YES	2.97E-04	YES
Octane	111-65-9	B	5	4.70E+03	4.80E-03	3.60E-05	3.15E-01	YES	1.57E-05	YES
Heptane (n-Heptane)	142-82-5	B	5	5.50E+03	8.40E-03	6.29E-05	5.51E-01	YES	2.74E-05	YES
Acetone	67-64-1	B	5	5.90E+03	4.50E-01	3.37E-03	2.95E+01	YES	1.47E-03	YES
Trichlorofluoromethane	75-69-4	B	5	1.90E+04	1.00E-01	7.49E-04	6.56E+00	YES	3.27E-04	YES

EXAMPLE CALCULATIONS:

TAP A - BENZENE  $G = 2000 \times 2.0E-02 \times (1/1000) \times (1/35.3147) \times (1/453.59237) \times 60$

TAP A & B  $H = G \times 8,760$

TAP A - BENZENE  $J = 1.31E+00 \times 453.59237 \times 0.0585/31536000$

TAP B - AMMONIA  $J = 1.20E+00 \times 24 \times 453.59237 \times 3.46/86400$

**APPENDIX D**  
**EMISSION CALCULATION – PARTICULATES**

**Table D-1. Particulate Matter/Particulate Matter Under 10 Microns Emissions**

SORBENT HOPPER LOADING									
PM					0.0035	lb/1000 lb material added			
PM <sub>10</sub>					0.0014	lb/1000 lb material added			
Operating Schedule									
24hrs/day*7 days/week*52weeks/year					8760	Hours/year			
Equipment Availability Factor (Annual)					100%				
Control Equipment provided is cyclone. Correction for collection efficiency is:					1.013	PM			
NOTE: EPA Publication AP-42, Section 11.26 (Talc Processing)					1.04	PM10			
Sorbent Addition Rate (lb/hr)	Bag Weight (lb)	Interval Between Bag Loading (hrs)	Bag Loading Duration (min)	Number of Bags Loaded Per Year		Uncorrected Emission Rates (PM)	Uncorrected Emission Rates (PM10)	Corrected Emission Rates (PM)	Corrected Emission Rates (PM10)
17	1000	59	5	149					
					Hourly (lb/hr)	3.50E-03	1.40E-03	3.55E-03	1.46E-03
					Annual (tons/yr)	2.61E-04	1.04E-04	2.64E-04	1.08E-04
	NUMBER OF UNITS	2		TOTAL	Hourly (lb/hr)	7.00E-03	2.80E-03	7.09E-03	2.91E-03
				TOTAL	Annual (tons/yr)	5.21E-04	2.08E-04	5.28E-04	2.17E-04

## **APPENDIX E**

### **SUGGESTED APPROVAL ORDER CONDITIONS AND RESTRICTIONS**

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### **E.1.0 DETERMINATION**

The Department of Ecology (Ecology), State of Washington, pursuant to RCW 70.94.152, WAC 173-400, and WAC 173-460 makes the following determinations:

- The facility, if operated as described in the Notice of Construction application, will be in accordance with applicable rules and regulations, as set forth in Chapter 173-400 WAC and 173-460 WAC, and the operation thereof will not result in ambient air quality standards being exceeded. Information submitted in the Notice of Construction application shows criteria pollutant emissions will be below the threshold levels contained in WAC 173-400-110(5)(d) and toxic air pollutants will be below Small Quantity Emission Rate thresholds and Acceptable Source Impact Level thresholds contained in WAC 173-460.
- The proposed activities do not qualify for exemption from New Source Review under WAC 173-400-110 as it has been determined that the proposed activities are not a minor process change as described in WAC 173-460040(2)(b). Therefore, a Notice of Construction application is required.

**THEREFORE, IT IS ORDERED** that the project as described in said Notice of Construction application is approved for construction, installation and operation, provided the following conditions are met:

### **E.2.0 CONDITIONS AND RESTRICTIONS**

The following sections provide proposed specific and general approval conditions and restrictions.

#### **E.2.1 PROPOSED SPECIFIC APPROVAL CONDITIONS**

- a. The activities described in Section 6.0 will be permitted without requiring additional emission control, provided that T-BACT emission controls are in service during exhauster operation.
- b. Two HEPA filter stages in series fulfill T-BACT requirements in accordance with WAC 173-460-040.
- c. A modification submittal of a Notice of Construction application will be required if total emissions of criteria pollutants exceed WAC 173-400-110 thresholds.
- d. Incorporate permit approval conditions into the Hanford Site Air Operating Permit when scheduled for revision.
- e. No periodic confirmatory measurements of emissions are required.

#### **E.2.2 PROPOSED GENERAL APPROVAL CONDITIONS**

Applicable records required under this approval will be maintained on file and made available for Ecology inspector requests. Estimated emissions will be compiled and reported annually

beginning with calendar year 2004 nonradioactive inventory of airborne emissions, pursuant to WAC 173-400-105.

- a. **Visible Emissions:** No visible emissions shall be allowed beyond the project perimeter boundary
- b. **Compliance Assurance Access:** Access to the source by EPA or Ecology shall be allowed for the purposes of compliance assurance inspections. Failure to allow access is grounds for revocation of the Order approving the NOC application.
- c. **Modification to Facility or Operating Procedures:** Any modification to T-BACT control equipment, contrary to information in the NOC application, shall be reported to Ecology at least sixty (60) days before such modification. Such modifications may require a new, or amended, NOC Approval Order.
- d. **Emissions Detrimental to Persons or Property:** No person shall cause or permit the emission of any air contaminant for any source if it is detrimental to the health, safety, or welfare of any person, or causes damage to property or business.
- e. **Activities Inconsistent with this Order:** Any activity undertaken by the Permittee or others, in a manner that is inconsistent with the NOC application, and this determination, shall be subject to Ecology enforcement under applicable regulations.
- f. **Obligations under Other Laws or Regulations:** Nothing in this Order shall be construed to relieve the Permittee of its obligations under any local, state, or federal laws, or regulations.
- g. Nothing in this approval shall be construed as obviating compliance with any requirement of law other than those imposed pursuant to the Washington Clean Air Act, and rules and regulations thereunder.

Any violation of such rules and regulations, or of the terms of this Order, shall be subject to the sanctions provided in Chapter 70.94 RCW.

#### **E.2.2.1 Emission Controls**

- a. As proposed in Section 9.1, no additional controls are required as a result of this Approval Order.
- b. For control of TAPs in particulate and aerosol form, T-BACT shall be HEPA filtration. HEPAs are also required abatement control technology for the Washington State Department of Health (DOH). Abatement control equipment required by DOH is deemed sufficient to address concerns of nonradioactive emissions for criteria and TAP pollutants.

#### **E.2.2.2 Emission Monitors:**

Refer to Section 9.2. No monitoring is required for the subject project activities.

**E.2.2.3 Manuals:**

Existing operation and maintenance (O&M) manuals for all equipment, procedures, and controls associated the OGTS system that have the potential to affect emissions to the atmosphere shall be followed. Manufacturers' instructions may be referenced. The O&M manuals shall be updated to reflect any modifications of the process or operating procedures. Copies of the O&M manuals shall be available to Ecology upon request.

**E.2.2.4 Notifications and Submittals:**

Any required notifications and submittals required under these Approval Conditions shall be sent to:

Washington State Department of Ecology  
Nuclear Waste Program  
3100 Port of Benton Boulevard  
Richland, Washington 99352

**E.2.2.5 Recordkeeping**

Specific OGTS records shall be kept on-site by the Permittee and made available for inspection by Ecology upon request. The OGTS records shall be organized in a readily accessible manner and cover the most recent six month (6) period. The records to be kept shall include the following:

- a. OGTS Work Package activities, including maintenance.

**E.2.3 APPROVAL ORDER AND RESTRICTIONS**

Authorization may be modified, suspended or revoked in whole, or part, for cause including, but not limited to, the following:

1. Violation of any terms or conditions of this authorization
2. Obtaining this authorization by misrepresentation, or failure to disclose fully all relevant facts.

The provisions of this authorization are severable and, if any provision of this authorization, or application or any provisions of this authorization to any circumstances, is held invalid, the application of such provision to their circumstances, and the remainder of this authorization shall not be affected thereby.

Any person feeling aggrieved by this ORDER may obtain review thereof by application, within thirty (30) days of receipt of the ORDER, to:

Pollution Control Hearing Board  
P.O. Box 40903  
Olympia, Washington 98504-0903

Concurrently, copies of the application must be sent to:

Washington State Department of Ecology  
P.O. Box 47600  
Olympia, Washington 98504-7600

Washington State Department of Ecology  
3100 Port of Benton Blvd  
Richland, Washington 99352

These procedures are consistent with the provisions of Chapter 43.21B RCW, and the rules and regulations adopted thereunder.

DATED at Kennewick, Washington, this xxth day of xxxx, 2004.

**PREPARED AND REVIEWED BY:**

---

(Permit writer signature)

**APPROVED BY:**

---

(Department of Ecology manager signature)

**Attachment 2**  
**04-ED-079**

**State of Washington Department of Ecology**  
**Permit Writer's Completeness Checklist**

**Permit Writers Checklist for Completeness**  
**Washington State Department of Ecology**  
**Notice of Construction Application Approval Order**

In the matter of approving a nonradioactive air emissions notice of construction application for:

Applicant	Requesting Party	<i>U.S. Department of Energy, Office of River Protection</i>	
	Responsible Program Manager	<i>Robert M. Yasek</i>	
	Point of Contact	<i>Dennis W. Bowser</i>	
Project Title/Document Number		<i>New Source Review Notice of Construction For The Proposed Contact-Handled Transuranic Mixed Waste Packaging and Storage Facility [Mixed Waste Packaging System NSR Non Rad NOC, Rev 1, July 2004]</i>	
Applicant Transmittal			
Facility Identification		<i>Proposed Contact-Handled Transuranic Mixed Waste Packaging and Storage Facility</i>	
Facility Location		<i>200 East Area: 241-B Tank Farm 200 West Area: 241-T Tank Farm</i>	
Project Summary			
Ecology Received Date			
Completeness Review			
Approval Order Number		Draft Date	
		Issue Date	

### Regulatory Applicability

Regulation	Applicability				Complete (Y/N)	
SEPA Checklist	Attached <input type="checkbox"/>	NA <input checked="" type="checkbox"/> <i>The proposed action is categorically exempt from SEPA Rules, WAC 197-11.</i>  <i>However for informational purposes, a SEPA Checklist is being prepared supporting the submittal of a Resource Conservation and Recovery Act of 1976 (RCRA) Part B Permit application for this proposed activity.</i>				
NEPA	Supplement Analysis For Hanford Tank Farm Contact Handled Transuranic Mixed Waste Treatment, Packaging, and Storage, DOE/EIS-0189-SA4					
WAC 173-400-091 (Voluntary Emission Limit)						
WAC 173-400 (Criteria Pollutants)	Yes <input checked="" type="checkbox"/> <span style="margin-left: 100px;">No <input type="checkbox"/></span>					
Pollutant (List pollutants emitted)	Release (pounds)	Exemption Threshold (pounds (Section 110))	PSD Threshold (tons/year (Section 141) (Section 113))	PSD (Y/N)	Not applicable	
<i>PM</i>	<i>1.1*</i>	<i>2500</i>	<i>25</i>	<i>N</i>		
<i>PM<sub>10</sub></i>	<i>0.4*</i>	<i>1500</i>	<i>15</i>	<i>N</i>		
<i>Table D-1 Corrected Emission Rates</i>						
<i>PM = 5.28E-04 tons/yr*2000 lb/ton</i>						
<i>PM<sub>10</sub> = 2.17E-04 tons/yr*2000 lb/ton</i>						
WAC 173-460 (TAPs)	Refer to Section 8.0					
WAC 173-400-171 (Public Involvement)						
WAC 173-400-116	Low	Moderate	High	Other		

(Fees, based on complexity)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WAC 173-401 (AOP Revision Category)	Off-permit (Section 724) <input checked="" type="checkbox"/>	Minor (Section 725) <input type="checkbox"/>	Significant (Section 725) <input type="checkbox"/>	
Other (WAC 173-XXX)				

### NOCA Required Components

Component	Location in Application	Complete (Y/N)
<b>Project Description</b>	Refer to Section 6.0	
<b>Emissions</b>		
<p>Criteria pollutant emissions PM and PM<sub>10</sub> in the form of particulates and aerosols are shown in Appendix D of the NOC application resulting from sorbent hopper loading. PM and PM<sub>10</sub> do not exceed threshold limits. Emissions of sulfur oxides, nitrogen oxides, VOCs, carbon monoxide, lead, and ozone depleting substances are typically generated as combustion products and are not considered a significant source of these criteria pollutants.</p> <p>TAPs are divided into two classes – Class A and Class B. Both Class A and Class B TAPs are present in Single-Shell Tanks 241-B-201 through 241-B-204; 241-T-201 through 241-T-204; and 241-T-111. Appendix A shows the maximum reported TAP vapor sample data for the 241-B Tank Farm tanks and Appendix B shows the maximum reported TAP vapor sample data for the 241-T Tank Farm. Calculated emissions (assuming 2,000 cfm for 1 year operation) of Class A and Class B TAP emissions from 241-B Tank Farm and 241-T Tank Farm are shown in Appendix C.</p>		
Emissions Estimate and Air Impact Analysis	Refer to Appendix C	
Criteria/TAPs	Refer to Section 7.0, 8.0, Appendix A, and Appendix B	
Dispersion Modeling Methodology	Refer to Appendix C	
Air Quality Modeling Results	Refer to Appendix C	
<b>Controls</b>		
<p>For particulates and aerosols, two stages of nuclear grade HEPA filters rated at 99.97% efficiency with an in-place leak test efficiency of 99.95% is proposed as T-BACT. HEPA filters are also the selected T-BACT selected for particulates and aerosols at the Waste Treatment Plant. HEPA filters are also the required Best Available Radionuclide Control Technology for the State of Washington Department of Health. Emission controls approved by the State of Washington Department of Health are deemed sufficient for possible concerns over de minimus criteria and/or particulate emissions.</p> <p>HEPA filters will be protected by airflow passing through a separator to remove water vapor and a heater to raise the temperature and dew point prior to reaching the HEPA filters.</p> <p>As a best management practice, organic vapor analyzers or similar instruments will be used for confirming low fugitive organic emissions as part of Hanford's industrial hygiene program. No special volatile organic compound (VOC) controls are required.</p>		
Control Equipment Description/Efficiencies	Refer to Section 9.0	
BACT or T-BACT	Refer to Section 9.1	

Proposed Criteria/TAPs Controls	Refer to Section 9.1	
<b>Monitoring</b>		
<i>No air emission sampling or monitoring will be required for nonradioactive air emissions because all emissions are below their respective SQER and ASIL threshold limits. Organic vapor analyzers, or other similar instruments for detecting fugitive organic emissions as part of Hanford's Industrial Hygiene program to monitor worker exposure, will be used to confirm low VOCs emissions.</i>		
Airborne Emissions Monitoring Systems	Refer to Section 9.2	
Air Operating Permit Requirements	A Notification of Off-Permit Change was submitted with NOC application	
<b>Schedule</b>		
<i>Field activities to support site preparation and equipment installation are currently scheduled to begin no earlier than October 2004. Waste processing activities are currently scheduled to start June 2005 and be completed no later than December 2007. The activity start and complete dates may vary dependent on Hanford Site planning. Also, waste container storage in the RCRA permitted container storage areas would be expected to continue up to 10 years after waste processing activities until shipped to an offsite deep geologic repository.</i>		

**Proposed NOCA Approval Order Conditions and Restrictions**

Component	Location in Application	Reviewed (Y/N)
Summary of Proposed Approval Order Conditions	Refer to Section 12.0/Appendix E	

Attachment 3  
04-ED-079

Hanford Site Air Operating Permit  
Notification of Off-Permit Change  
Permit Number: 00-05-006

# HANFORD SITE AIR OPERATING PERMIT

## Notification of Off-Permit Change

Permit Number: 00-05-006

This notification is provided to Washington State Department of Ecology, Washington State Department of Health, and the U.S. Environmental Protection Agency as notice of an off-permit change described as follows.

This change is allowed pursuant to WAC 173-401-724(1) as:

1. Change is not specifically addressed or prohibited by the permit terms and conditions
2. Change does not weaken the enforceability of the existing permit conditions
3. Change is not a Title I modification or a change subject to the acid rain requirements under Title IV of the FCAA
4. Change meets all applicable requirements and does not violate an existing permit term or condition
5. Change has complied with applicable preconstruction review requirements established pursuant to RCW 70.94.152.

Provide the following information pursuant to WAC-173-401-724(3):

<b>Description of the change:</b>	
Submittal of, NEW SOURCE REVIEW NOTICE OF CONSTRUCTION FOR THE PROPOSED CONTACT-HANDLED TRANSURANIC MIXED WASTE PACKAGING AND STORAGE FACILITY	
<i>This Notice of Construction application requests approval for construction and operation of one Proposed Contact-Handled Transuranic Mixed Waste Packaging and Storage Facility to be located initially in the 241-B Tank Farm and then relocated to the 241-T Tank Farm on the Hanford Site. Transuranic mixed waste will be processed from nine single-shell tanks: 241-B-201 through 241-B-204; 241-T-201 through 241-T-204; and 241-T-111.</i>	
<b>Date of Change:</b> To be provided by the regulatory agency	
The date the approval order is issued by the Washington State Department of Ecology.	
<b>Describe the emissions resulting from the change:</b>	
The waste packaging and storage activities will emit an estimated 1.1 pounds of PM and 0.4 pounds of PM <sub>10</sub> . Estimated TAPs emitted are below Small Quantity Emission Rate thresholds and below Acceptable Source Impact Level thresholds. The ventilation system will have HEPA filtration meeting T-BACT requirements of WAC 173-460-040.	
<b>Describe the new applicable requirements that will apply as a result of the change:</b> To be provided in the agency approval order.	
Conditions and limitations will be those identified in the approved order when issued by the Washington State Department Ecology	
For Hanford Use Only:	
AOP Change Control Number:	Date Submitted: